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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/714,174

11/14/2003

Atsuhiro Sakurai

TI-35272

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TEXAS INSTRUMENTS INCORPORATED

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EXAMINER

SAINT CYR, LEONARD

ART UNIT

PAPER NUMBER

2626

NOTIFICATION DATE

DELIVERY MODE

03/07/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/714,174	Applicant(s) SAKURAI ET AL.	
	Examiner LEONARD SAINT CYR	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1 - 10 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dolson (US Patent 6,112,169) in view of Laroche (US Patent 6, 766,300).

4. Regarding claims 1, and 6, Dolson discloses a method of converting an input digital audio signal into an output digital audio signal having a modified time scale comprising the steps of:

calculating a discrete Fourier transform of first equally spaced, overlapping time windows having a first overlap amount of the input digital audio signal("windowed DFT to each overlapping"; col. 5, lines 3 - 6);

partitioning the spectrum into a plurality of contiguous spectral bands ("contiguous frequency regions"; col. 5, lines 3-6);

identifying a dominant spectral line having the greatest magnitude within each spectral band ("identification of significant peaks within a DFT spectrum; and division of the DFT spectrum into contiguous frequency regions"; col.3, lines 49 - 52);

calculating a phase difference for the dominant spectral line of each spectral band by a phase vocoder algorithm ("phase modification ... for each significant peak"; col. 5, lines 34-37);

calculating a phase difference for each of a predetermined number of spectral lines near the dominant spectral line within each spectral band as the phase difference of the corresponding dominant spectral line; calculating a phase difference for other spectral lines of each spectral band by the phase vocoder algorithm ("phase values are shifted by subtracting the same number that was subtracted from the phase value for the significant peak"; col.5, lines 50 - 60); and

calculating an inverse discrete Fourier transform resulting in equally spaced, overlapping time windows having a second overlap amount employing the calculated phase difference for each spectral line, the second overlap selected having a ratio to the first overlap amount to achieve a desired time scale modification (see col. 5, lines 62-65).

However, Dolson does not specifically teach partitioning the spectrum into a plurality of contiguous spectral bands according to a Bark scale where each spectral band has an extent dependent upon human frequency perception.

Laroche teaches that a better sub-band decomposition could be used using frequency bands uniform in a bark scale (col.3, lines 55 - 58).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use bark scale frequency division as taught by Laroche in Dolson, because that would help better divide the spectrum in better uniform frequency bands.

As per claims 2, and 7, Dolson in view of Laroche do not specifically teach that the predetermined number of spectral lines near the dominant spectral line is 4 for a 1024-point spectrum. However, since Dolson teaches adjusting phases of other channels within a particular contiguous frequency region containing the particular significant peak (col.3, lines 32 - 34). One having ordinary skill in the art at the time the invention was made to consider a predetermined number of spectral lines near the dominant spectral line in Dolson in view of Laroche, so that original phase relationships across channels within the particular contiguous frequency region can be preserved (col.3, lines 34 – 36).

Regarding claims 3, and 8, Dolson further discloses merging nearby spectral lines that are within a predetermined frequency range of each other prior to calculating the phase difference (“a sequence of overlapping windowed”; col.3, lines 8 – 12).

Regarding claims 4, and 9, Dolson further discloses said that step of partitioning the spectrum into a plurality of contiguous spectral bands employs predetermined spectral bands unrelated to the digital audio signal (figs. 4 – 6; col.5, lines 42 - 49).

Regarding claims 5, and 10, Dolson further discloses that step of partitioning the spectrum into a plurality of contiguous spectral bands includes adjusting boundaries of spectral bands to maintain important frequency groups within the same spectral band ("the borders between contiguous frequency regions may be selected in a number of ways"; col. 5, lines 20-24).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD SAINT CYR whose telephone number is (571) 272-4247. The examiner can normally be reached on Mon- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Art Unit: 2626

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LS

03/01/08


RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER